Natural Engineer

Version 4.4.2

Administration Guide

for Windows

software AG

Acknowledgements

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ABOUT THIS MANUAL

Purpose of this manual

This manual contains the various administration topics for Natural Engineer.

It describes the Administration functions available from the Options➔Administration menu within Natural Engineer. These include:

- The Initialization settings within the INI file which are used to control the various processes within Natural Engineer.

- The default Text Logic Members (TLM) used during the modification process.

- The default Global Standards that are to be applied during Impact Analysis to check applications are being maintained to site standards.

The are several administration functions required to run Natural Engineer, which are not directly administered from within Natural Engineer itself. These and their methods are also described:

- Adding a Natural Engineer icon to the Natural Studio toolbar.

- Environment sizing options.

- Transferring a Natural Engineer Repository from the mainframe environment to the PC environment.

- Supplied Data files.

Target Audience

The target audience for this manual is intended to be any User of Natural Engineer as well as Systems Administrators responsible for installing and configuring the product.

Typographical Conventions used in this manual

The following conventions are used throughout this manual:

UPPERCASE TIMES	Commands, statements, names of programs and utilities referred to in text paragraphs appear in normal (Times) uppercase.
`UPPERCASE BOLD COURIER`	In illustrations or examples of commands, items in uppercase bold courier must be typed in as they appear.
< >	Items in angled brackets are placeholders for user-supplied information. For example, if asked to enter <file number>, you must type the number of the required file.
Underlined	Underlined parts of text are hyperlinks to other parts within the online source manual. This manual was written in MS-Word 97 using the "hyperlink" feature.

The following symbols are used for instructions:

$\Rightarrow$	Marks the beginning of an instruction set.
❏	Indicates that the instruction set consists of a single step.
1.	Indicates the first of a number of steps.

How this manual is organized

This manual is organized to reflect all the Administration options of Natural Engineer in the following chapters:

Chapter	Contents
1	Describes the various Administration functions, which control various processes within Natural Engineer and can be found from the Options➔Administration menu.
2	Describes how to add a shortcut icon to the Natural Studio toolbar to invoke Natural Engineer from within Natural Studio.
3	Describes various configuration administration topics, which are not directly administered from within Natural Engineer itself.

Terminology

It is assumed that you are familiar with general Natural and mainframe terminology, as well as the terms and concepts relating to Microsoft Windows operating systems. This section explains some terms that are specific to the Natural Engineer product.

Analysis

The Analysis process of Natural Engineer searches application data within the Natural Engineer Repository, according to specified Search Criteria and generates reports on the search results.

Application

An Application is a library or group of related libraries, which define a complete Application. In Natural Engineer, the Application can have a one-to-one relationship with a single library of the same name, or a library of a different name, as well as related steplibs. The Application refers to all the source code from these libraries, which Natural Engineer loads into the Repository.

Browser

An Internet Browser such as Microsoft Internet Explorer or Netscape.

Category

Categories in Natural Engineer specify whether and how a Modification is applied to the Natural code. Valid categories are: Automatic change, Manual change, Reject the default Modification, No change to the data item, and the data item is in Generated Code.

A category is further broken down according to type of change (for example: Keyword, Literal, Data Item, Database Access, Definition).

Consistency

An option in the Analysis process that causes Natural Engineer to trace an Impact through the code, using left and right argument resolution to identify further code impacted by the code found.

Environment

The Environment process is the means by which Natural Engineer generates a structured view of the application code in the Natural Engineer Repository. This provides application analysis reports and inventory information on the application and is used as the basis for Impact Analysis.

Exception

An Exception is an Item identified as impacted that does not require a Modification. Where there are a few similar Exception Items, they can be treated as Exceptions, and rejected in the Modification review process. Where there are many similar (therefore not Exceptions), consideration should be given to changing the Search Criteria so they are not identified as impacted in the first place.

Generated Code

This is code which has been generated by a Natural code generator, such as Construct, and which is not normally modified directly in the Natural editor.

Impact

An Impact is an instance of a Natural code Item; e.g., data item or statement (a "hit" scored by the Analysis process) that matches the defined Search Criteria used in the Analysis process.

Iteration

An Iteration is one examination cycle of a field identified according to the specified Search Criteria. For example, one Iteration is reading the field right to left. Multiple Iterations are performed when the option of 'Consistency' or Multi Search is requested for Analysis, and Natural Engineer performs as many Iterations as necessary to exhaust all possibilities of expressing and tracing the field, and can be limited by a setting in the NATENG.INI file.

Library

A single library of source code, which exists in the Natural system file.

Modification

A Modification is a change suggested or made to an object or data item resulting in the required compliance of that object or data item. Modifications in Natural Engineer are classified according to Category and Type.

Presentation Split Process

The Presentation Split Process is a sub-function of the Object Builder function that removes screen I/O statements from current application objects and places them in generated subprograms.

Soft Link

A Soft Link is where a link between two objects has been defined using an alphanumeric variable rather than a literal constant.

Technical Split Process

The Technical Split Process is a sub-function of the Object Builder function that results in the encapsulation of each database access within the application, into a sub-program so that the application is separated into 'presentation and logic' and 'database access'.

Type

The Type of Modification available, for example: Data Item, Keyword and Literal.

TLM

Text Logic Members are used to contain the code required to support inclusion of common code into the application. An example of this is the code to include into an application before updating a database.

Related Literature

The complete set of Natural Engineer manuals consists of:

1   Natural Engineer Concepts and Facilities (NEE442-006ALL)

The Concepts and Facilities manual describes the many application systems problems and solutions offered by Natural Engineer, providing some guidelines and usage that can be applied to Natural applications.

2   Natural Engineer Release Notes (NEE442-008ALL)

The Release Notes describe all the information relating to the new features, upgrades to existing functions and documentation updates that have been applied to Natural Engineer.

3   Natural Engineer Installation Guide (NEE442-010ALL)

The Installation Guide provides information on how to install Natural Engineer on both PC and mainframe platforms.

4   Natural Engineer Administration Guide (NEE442-040WIN)
Natural Engineer Administration Guide (NEE442-040MFR)

The Administration Guide provides information on all the various control settings available to control the usage of the different functions within Natural Engineer.

5   Natural Engineer Application Management (NEE442-020WIN)
Natural Engineer Application Management (NEE442-020MFR)

The Application Management manual describes all the functions required to add Natural applications into the Repository.

6   Natural Engineer Application Documentation (NEE442-022WIN)
Natural Engineer Application Documentation (NEE442-022MFR)

The Application Documentation manual describes all the available functions to document a Natural application within the Repository. These functions will help enhance / supplement any existing systems documentation such as BSD / CSD / Specifications etc.

7   Natural Engineer Application Analysis and Modification (NEE442-023WIN)
Natural Engineer Application Analysis and Modification (NEE442-023MFR)

The Application Analysis and Modification manual describes all the available functions to carry out analysis of Natural applications; including basic keyword searches. The modification process is described and detailed to show how it can be applied to modify single selected objects within a Natural application, or the entire Natural application in one single execution.

8   **Natural Engineer Application Restructuring (NEE442-024WIN)**
    Natural Engineer Application Restructuring (NEE442-024MFR)

The Application Restructuring manual describes the analysis and modification functionality required to carryout some of the more sophisticated functions such as Object Builder.

9   **Natural Engineer Utilities (NEE442-080WIN)**
    Natural Engineer Utilities (NEE442-080MFR)

The Utilities manual describes all the available utilities found within Natural Engineer and, when and how they should be used.

10   **Natural Engineer Reporting (NEE442-025ALL)**

The Reporting manual describes each of the reports available in detail, providing report layouts, how to trigger the report and when the report data becomes available. The various report-producing mediums within Natural Engineer are also described.

11   **Natural Engineer Batch Processing [Mainframes] (NEE442-026MFR)**

The Batch Processing manual describes the various batch jobs (JCL) and their functionality.

12   **Natural Engineer WebStar (NWS442-020ALL)**

The WebStar manual describes the concepts and facilities, installation and configuration options, how to web enable a Natural application and how to create and execute Natural Short Transactions using the Natural Engineer add-on component WebStar.

13   **Natural Engineer WebStar Release Notes (NWS442-008ALL)**

The Release Notes describe all the information relating to the new features, upgrades to existing functions and documentation updates that have been applied to the Natural Engineer add-on component WebStar.

14   **Natural Engineer Messages and Codes (NEE442-060ALL)**

The Messages and Codes manual describes the various messages and codes produced by Natural Engineer.

1

ADMINISTRATION OPTIONS

Chapter Overview

There are several administration options available within Natural Engineer which allow Users or Systems Administrators, the facility to fine tune Natural Engineer to their site requirements, thus ensuring any use of the product will conform to a common set standard.

These administration options can be found using the following menu navigation: Options➔Administration from the main Natural Engineer screen.

There are three options available:

1. **Default Text Logic Members**

Text Logic Members can be used during the modification process and allow user defined processing logic to be included as part of the modification.

2. **Initialization Settings**

Natural Engineer makes use of an initialization file NATENG.INI to control many of it's various functions, from reports and graphics to the comments used during the modification process.

3. **Global Standards**

Global Standards are used to determine if applications conform to acceptable Natural application standards. Global standards can be defined and then applied to each application on the Repository.

Default Text Logic Members

Site wide Text Logic Members (TLMs) may be specified using the Default Text Logic Members option from the Options➔Administration menu.

TLMs are Natural objects with an object type of Text, containing the required processing code to be used during modification. They need to exist on either the modification library specified in the application preferences or, can be held on the Natural SYSTEM library.

After the TLMs have been saved, they need to be defined using the Default Text Logic Members option in order that Natural Engineer can recognize them and use them during the modification process.

Note: It is possible to override the default settings using the Modification Preferences option from the Modification menu. This will override the TLMs for the current selected application only.

For more information on the Modification Preferences option refer to the Natural Engineer Application Analysis & Modification for Windows manual.

Supplied Default Text Logic Members

Natural Engineer comes supplied with two Default Text Logic Member (TLM) objects that are used with the Nat 2.2 to Nat 3.1 conversion:

1. N31R05T1

2. N31R05T2

Note: These objects can be found on the Natural Engineer SYSNEE library and will need to be moved to either SYSTEM or modification libraries as required. If moved to the SYSTEM library, they will be available to all modification libraries.

N31R05T1

This TLM is used by the Natural 2.2 to 3.1 conversion process for the SAG05 remedy 1.

```
0010 /* -------------------------------------------------------------
0020 /* Added for Natural 2.2 to 3.1 Conversion: SAG05 Remedy 1
0030 /* Updated by: XX-USER  Dated: XX-DATE  Time: XX-TIME using NEE
0040 /* -------------------------------------------------------------
0050 IGNORE
```

N31R05T2

This TLM is used by the Natural 2.2 to 3.1 conversion process for the SAG05 remedy 2.

```
0010 /* -------------------------------------------------------------
0020 /* Added for Natural 2.2 to 3.1 Conversion: SAG05 Remedy 2
0030 /* Updated by: XX-USER  Dated: XX-DATE  Time: XX-TIME using NEE
0040 /* -------------------------------------------------------------
0050 ASSIGN XX-LOOPVAR = XX-MAXVAL
```

Default Text Logic Members Window

All the specifications for the Default TLMs are defined using the Default Text Logic Member screen. This is accessed by using the following menu navigation: Options➔Administration➔Default Text Logic Members from the main Natural Engineer screen.

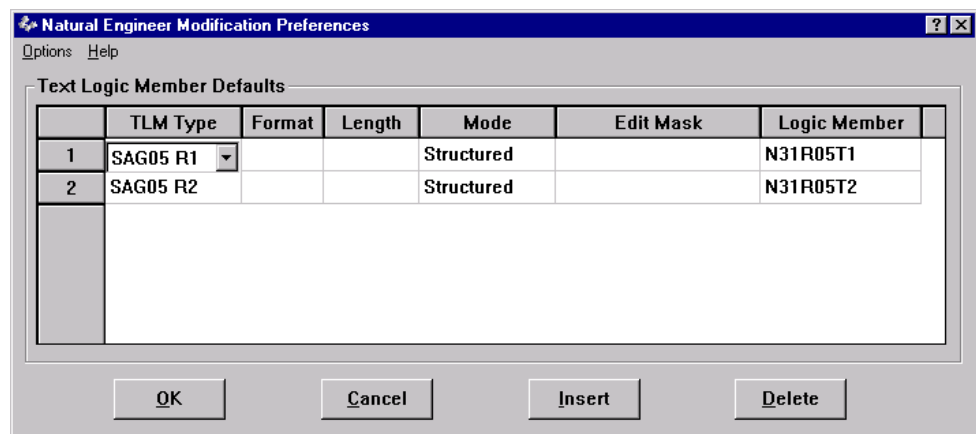The following Figure 1-1 illustrates the Default Text Logic Member screen.

Figure 1-1 Default Text Logic Member screen

MENU ITEMS	OPTIONS	DESCRIPTION
Options	**Exit**	Exits the Default Text Logic screen and returns back to the main Natural Engineer screen.
Help		Invokes the Default Text Logic Member help.

SCREEN ITEMS	DESCRIPTION	
TLM Type	Specify what type of TLM is defined. Valid values are:	
	START	A TLM to be inserted at the Start of an Object. This is after the definition of the data items in the object.
	DATA	A TLM that provides data items to be included in an object that has TLMs inserted.
	MISC	A TLM that is placed at the end of the object that can contain processing, for example including common routines.

SCREEN ITEMS	DESCRIPTION
COMMENT	To be inserted at the start of the object to explain another TLM inserted in the object. The following variables can be specified and will be replaced at remedy execution.

- XX-DATE, which will be translated into DD/MM/YYYY

- XX-TIME, which will be translated into HH:MM:SS

- XX-USER, which will contain the user-id of the person who executed modification for the object.

CMPT COMM	The Component comment inserted at the start of the new component subprogram that has been created.
CMPT DATA	Component parameter data inserted as the last parameter passed in the subprogram. The TLM data must be specifically coded in this routine and must contain the following definition first.

01 #EXTRA-PDA

If a component TLM is required to pass a data item #RESPONSE between the new subprogram and the object calling it then the following is the structure for this TLM:

01 #EXTRA-PDA
02 #RESPONSE (A1)

SAG05 R1	This is the default modification for empty FOR and REPEAT statement blocks. The TLM will insert the keyword IGNORE into the empty block. For Example:

1020 REPEAT
1030   IGNORE
1040 END-REPEAT

Note: Used in Nat 2.2 to Nat 3.1 conversion.

SCREEN ITEMS	DESCRIPTION
	SAG05 R2 This TLM type can be used as an alternative to the default SAG05R1. This will comment out the empty statement block but then insert a line of code to set the applicable variable to the maximum value. For Example:
	FOR #A = 1 TO 10, will insert MOVE 10 TO #A.
	This will only be applied to a FOR loop block, a REPEAT loop block will only get commented out.
	Additionally, if this TLM type is selected in the preference screen, then prior to modification the update field button will need to be used on the Modification Element Maintenance screen to ensure the correct TLM is applied during modification.
	Note: Used in Nat 2.2 to Nat 3.1 conversion.
Format	The format of the data item the TLM relates to. (Not used at present.)
Length	The length of the data item the TLM relates to. (Not used at present.)
Mode	Programming mode to which the TLM applies. Valid values are:
	Structured Structured mode
	Reporting Reporting mode
Edit Mask	The specific edit mask for the data item that the TLM relates to. (Not used at present.)
Logic Member	Name of the TLM to be used.

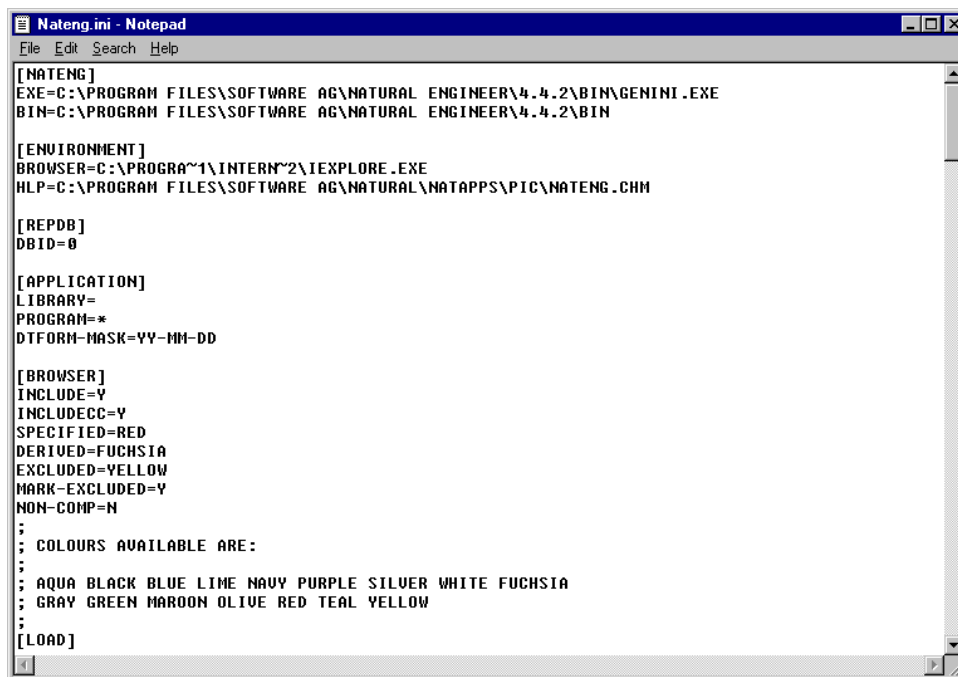| BUTTON NAME	DESCRIPTION
OK	Saves the specified default TLM details and returns back to the Natural Engineer main menu screen.
Cancel	Cancels any input on the screen and returns back to the Natural Engineer main menu screen.
Insert	Inserts a new blank line.
Delete	Deletes the selected line.

Initialization Settings

The various configuration options for Natural Engineer are held as initialization parameters contained in a PC file called NATENG.INI. This PC file resides in the default directory for WinNT e.g., X:\WINNT folder, where X: is the drive containing the WINNT system folder.

The format within the NATENG.INI file consists of labels used to group the various parameters to the applicable function area within Natural Engineer.

The NATENG.INI file can be accessed in one of two ways:

1. Directly, by locating the NATENG.INI file in the x:\WINNT folder and opening it using a Text editor such as NOTEPAD.

The following Figure 1-2 illustrates the NATENG.INI file viewed using NOTEPAD.


```
Nateng.ini - Notepad
File  Edit  Search  Help

[NATENG]
EXE=C:\PROGRAM FILES\SOFTWARE AG\NATURAL ENGINEER\4.4.2\BIN\GENINI.EXE
BIN=C:\PROGRAM FILES\SOFTWARE AG\NATURAL ENGINEER\4.4.2\BIN

[ENVIRONMENT]
BROWSER=C:\PROGRA~1\INTERN~2\IEXPLORE.EXE
HLP=C:\PROGRAM FILES\SOFTWARE AG\NATURAL\NATAPPS\PIC\NATENG.CHM

[REPDB]
DBID=0

[APPLICATION]
LIBRARY=
PROGRAM=*
DTFORM-MASK=YY-MM-DD

[BROWSER]
INCLUDE=Y
INCLUDECC=Y
SPECIFIED=RED
DERIVED=FUCHSIA
EXCLUDED=YELLOW
MARK-EXCLUDED=Y
NON-COMP=N
;
; COLOURS AVAILABLE ARE:
;
; AQUA BLACK BLUE LIME NAVY PURPLE SILVER WHITE FUCHSIA
; GRAY GREEN MAROON OLIVE RED TEAL YELLOW
;
[LOAD]
```

Figure 1-2 NATENG.INI file viewed using NOTEPAD

Entries can be added, removed or updated using the standard editing functions within NOTEPAD.

Note: Any updates must be saved in order that they are made available to Natural Engineer.

2. By using the Initialization Settings option from the Options menu. This opens the Initialization Settings window, which uses tab headings to group the parameters by function area. This is described in detail below.

Note: This is the preferred method.

The PC file containing the initialization settings supplied with Natural Engineer is named NATENG.INI. This name can be modified to alternate names, but the file extension '.INI' must always be retained. This allows you have multiple versions of this file, each tailored to specific settings for Natural Engineer. These alternate files must be held in the default directory for WinNT. Additionally, these alternate files will need to be specified in the work file number 1 of the appropriate NATPARM being used to run Natural Engineer.

Initialization Settings Window

The Initialization Settings window is used to manage all the initialization parameters within the NATENG.INI file. Each label found in the NATENG.INI file is represented by a tab label.

The details shown is exactly the same as the details found when viewing the NATENG.INI file using a text editor, this makes the process of modifying the initialization settings more straightforward.

The Initialization Settings option is accessed by using the following menu navigation: Options➔Administration➔Initialization Settings from the main Natural Engineer screen.

The following Figure 1-3 illustrates the Initialization Settings screen.
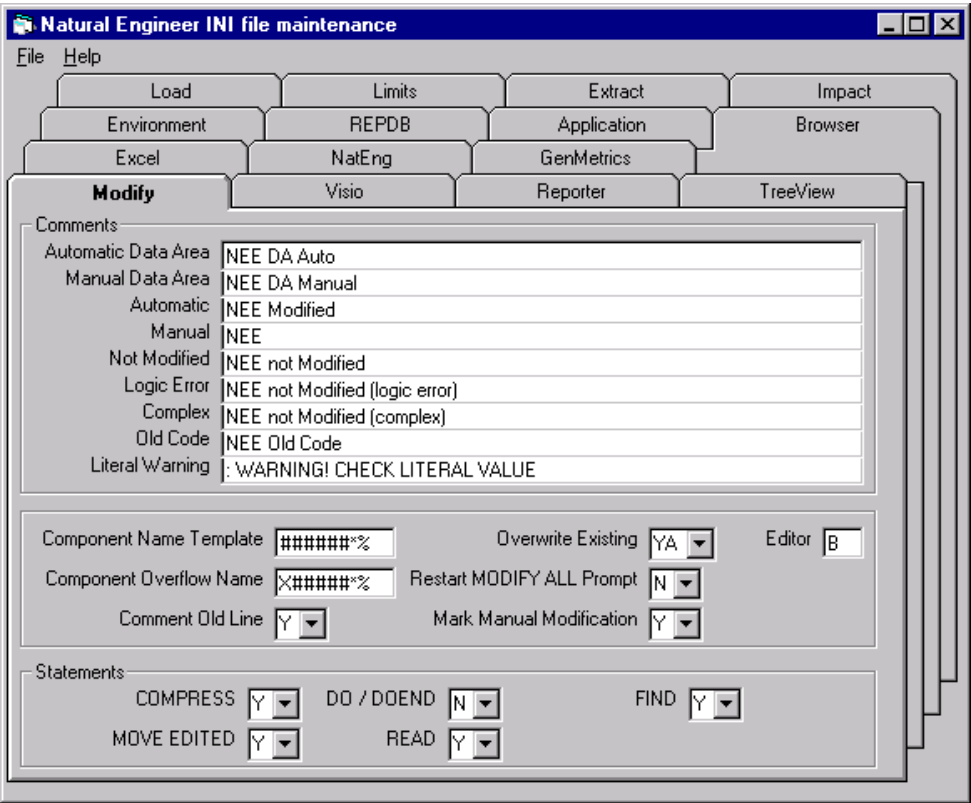
Figure 1-3 Initialization Settings screen

MENU ITEMS	OPTIONS	DESCRIPTION
File	**Save**	Save the changes made to the INI file.
	Exit	Will close the INI file maintenance screen and return you back to the main Natural Engineer screen.
Help	**About**	Displays the GenIni version information.

SCREEN ITEMS   DESCRIPTION

Note: Only each of the tab headings is explained here. For explanations of the various parameters within each tab refer to the [NATENG.INI parameters](#) section in this manual.

Modify	Groups all the parameters associated with the modification functions.
Visio	Groups all the parameters associated with the use of Microsoft Visio 2000.
Reporter	Groups all the parameters associated with the various textual reports available.
TreeView	Groups all the parameters associated with using GenTree for graphical reporting.
Excel	Groups all the parameters associated with using Excel.
NatEng	Groups all the parameters associated with general Natural Engineer usage.
GenMetrics	Groups all the parameters associated with using GenMetrics.
Environment	Groups all the parameters associated with general Natural Engineer usage.
REPDB	Groups all the parameters associated with Database usage.
Application	Groups all the parameters associated with the Application functions.
Browser	Groups all the parameters associated with the Browser display functions.
Load	Groups all the parameters associated with the Load function.
Limits	Groups all the parameters associated with limiting the listbox page size.
Extract	Groups all the parameters associated with the Extract functions.
Impact	Groups all the parameters associated with the Impact functions.

NATENG.INI Parameters

The following table lists the entire NATENG.INI parameters and their respective group headings.

The notation used in the table:

[GROUP HEADER]	Group headers will be surrounded by square brackets.
PARAMETER=	Each parameter is named and followed by an equals sign.

Group Header / Parameter	Description
[NATENG]	
EXE=	The full directory name where the binary for the Maintain Initialization setting dialog is installed. For example: C:\PROGRAM FILES\SOFTWARE AG\NATURAL ENGINEER\4.4.2\ BIN\GENINI.EXE.
[ENVIRONMENT]	
BROWSER=	The full directory name of where your preferred Browser resides.
HLP=	The full directory name where the Natural Engineer Help file is located. For example: C:\PROGRAM FILES\SOFTWARE AG\NATURAL \NATAPPS\ PIC\NATENG.CHM.
NETWORK=	Default=N
	Used to control the Adabas calls to the Repository when running Natural Engineer in a SPoD environment.
	If set to N, the Adabas calls to the Repository are issued on the remote environment.
	If set to Y, the Adabas calls to the Repository are issued on the local environment
	Possible values Y,N

Group Header / Parameter	Description
[REPDB]	
DBID=	Default=0
	Where a value of 0 is given to the DBID, no database will start up when Natural Engineer starts, nor shutdown when you close Natural Engineer. Other values will cause the database with that number to start up and shut down automatically, with Natural Engineer.
[APPLICATION]	
DTFORM-MASK=	Default=YY-MM-DD
	This allows users to specify their own site standard DTFORM mask.
[LOAD]	
METRICS=	Default=Y
	Causes metrics to be calculated internally as part of the Load post process.
[GENMETRICS]	
DATA=	Path to the Metrics comma delimited file.
[BROWSER]	
INCLUDE=	Default=Y
	This allows you to specify if you want to expand any included external data areas within the object for viewing in the Browser.
	Possible values Y,N
INCLUDECC=	Default=Y
	This allows you to specify if you want to expand any included copycode within the object for viewing in the Browser.
	Possible values Y,N

Group Header / Parameter	Description
SPECIFIED=	Default=RED
	Color associated with directly matched data items.
	Valid colors are:
	AQUA, BLACK, BLUE, LIME, NAVY, PURPLE, SILVER, WHITE, FUCHSIA, GRAY, GREEN, MAROON, OLIVE, RED, TEAL, YELLOW.
DERIVED=	Default=FUCHSIA
	Color associated with data items that have been impacted by specified data items.
	Valid colors are:
	AQUA, BLACK, BLUE, LIME, NAVY, PURPLE, SILVER, WHITE, FUCHSIA, GRAY, GREEN, MAROON, OLIVE, RED, TEAL, YELLOW.
EXCLUDED=	Default=YELLOW
	Color associated with data items that have been excluded.
	Valid colors are:
	AQUA, BLACK, BLUE, LIME, NAVY, PURPLE, SILVER, WHITE, FUCHSIA, GRAY, GREEN, MAROON, OLIVE, RED, TEAL, YELLOW.
MARK-EXCLUDED=	Default=Y
	When viewing impacted code, excluded data items are highlighted and strikethrough. If set to N, excluded data items are not marked in the Browser.
	Possible values Y,N
NON-COMP=	Default=N
	When viewing impacted code, you can select to ignore those data items that which are already compliant. E.g. data items which already contain the century.
	Possible values Y,N

Group Header / Parameter	Description
[LIMITS]	
LISTBOXMAX=	Default=200
	This is used to control how many objects are loaded into the list-boxes for selection before you have to read more from the Repository.
	Possible values 1-200.
[EXTRACT]	
ELETAB=	Default=10000
	Maximum number or parsed elements per object.
STEPTAB=	Default=1000
	Maximum number of objects to retrieve from steplibs.
VARTAB=	Default=1000
	Maximum number of variable definitions per object.
OBJTAB=	Default=20000
	The number of unique objects in the base library.
REFTAB=	Default=10000
	The number of unique referenced objects in the base library.
GBLDDM-TAB=	Default=500
	The number of unique DDM objects to be extracted per application.
DDMCACHE=	Default=0
	Maximum number of DDM definitions held in memory. If this value is increased then the performance of the Extract process may be enhanced.
	Suggested values 0-10.
PERF-PTAB=	Default=300
	Amount of PERFORM statements held in internal table per object.
PERF-DTAB=	Default=130
	Amount of DEFINE subroutine statements held in internal table per object.

Group Header / Parameter	Description
ADABAS-SHORT-NAMES=	Default=N
	This ensures that Natural Engineer will identify the 2 byte mnemonics and tie them up with the DDM.
	Note that this setting must only be used when the code does contain Adabas Short Names.
	Possible values Y,N
[IMPACT]	
IOR=	Default=Y
	Used when Consistency is selected for Analysis.
	If set to Y, data elements are tracked across object boundaries following the impact process. IOR=ONLY will ensure that Natural Engineer only performs inter object tracing. Please note that this setting should only be used following a successful multiple impact or to restart a previously failed IOR process.
	Possible values Y,N, ONLY
TRACKING=	Default=N
	Used when Consistency or Multi Search is selected for Analysis. It controls the tracking direction for a variable.
	If set to F, a variable is tracked in a forward direction, showing all the derivatives being populated from the variable. If set to B, a variable is tracked in a backward direction, showing where the variable and derivatives have been populated. If set to N, both the forward and backward directions will be shown.
	Possible values N,F,B
IOR-LIMIT=	Default=20
	Used when Consistency is selected for Analysis.
	This is the number of Iterations that IOR will track objects across object boundaries.
REDEFMAP=	Default=Y
	If set to Y, multiple redefines are tracked.
	Possible values Y,N

Group Header / Parameter	Description
CONSISTENCY=	Default=N
	If set to Y, will mark the Consistency selection box with a tick (select) on the Impact Criteria screen. This will cause Analysis to trace code identified for further impact on other code.
	Possible values Y,N
	Note: For more information on the consistency option refer to Chapter 1 in the Natural Engineer Application Analysis and Modification for Windows manual.
START=	Used when Consistency is selected for Analysis.
	Start object name for running concurrent Impact Analysis jobs or to start Impact Analysis after failure.
END=	Used when Consistency is selected for Analysis.
	End object name for running concurrent impact Analysis jobs. This should be set to blank if running impact Analysis after failure.
MODE=	Default=Re-eng
	This is used to control the type of impact Analysis that will be used.
IMP-EXCLUDE-X=	Default=Y
	If set to Y will not show excluded fields on the dialog. Default setting shows all excluded fields.
	Possible values Y,N
VIEW-CODE=	Default=Y
	If set to default will show the source code. Default setting is to show the Natural Engineer interpretation.
	Possible values Y,N
GLOBAL_DATAITEM=	Default=N
	Used when consistency is selected for analysis and impacts have been made to Global Data Areas. By setting this flag to Y, Natural Engineer will track these fields, and derivations of these fields, until all possible impacts have been identified.

Group Header / Parameter	Description
DDM_DATAITEM=	Default=N
	Used when consistency is selected for analysis and impacts have been made to DDMs. By setting this flag to Y, Natural Engineer will track these fields, and derivations of these fields, until all possible impacts have been identified.
IMPACT_DEBUG=	Default=N
	Only to be used when requested by Support personnel.
LANG=	Default=01
	Used for Multi Search. Default multi search criteria may be created and saved in DATA directory as ###DEFnn.ISC, where nn refers to the language code.
[MODIFY]	
EDITOR=	Default=B
	The editor used to show the code to be modified.
COM_DA_AUTO=	Default=NEE Mod
	The comment line for an automatic Data Area change.
COM_DA_MAN=	Default=NEE
	The comment line for a manual Data Area change.
COM_AUTO=	Default=NEE Modified
	The comment line for an automatic non Data Area change.
COM_MAN=	Default=NEE Manual
	The comment line for a manual non Data Area change.
COM_NOT=	Default=NEE not Modified
	The comment line for no change required.
COM_ERR=	Default=NEE not Modified (logic error)
	The comment line for an error in processing.

Group Header / Parameter	Description
COM_COMPLEX=	Default=NEE not Modified (complex)
	The comment line for a Modification that could not be completed.
COMMENT-OLD-LINE=	Default=Y
	If set to Y, then the old code will be commented out and left in the modified object.
	If set to N, then the old code is deleted from the modified object.
COM_OLD_CODE=	Default=NEE Old Code
	There is now the ability for the user to customize the wording of the comment that is placed into the code during modification to indicate old code.
MODIFY-ALL-START=	Default=N
	This will prompt the user, on the PC, for a starting point. If none is provided then Modification will Modify all objects.
	Possible values Y,N
COM_LITERAL_WARN=	Default=: WARNING! CHECK LITERAL VALUE
	If this is present then a warning will be added to the code if a literal needs to be modified.
	If this parameter is not already present, then no message is added to the code, otherwise just before the line gets changed, you will get the field name involved with a literal compressed with the text for COM_LITERAL_WARN. Please note that the maximum length for a Modification comment is 32 bytes.

Group Header / Parameter	Description
MARK_MANUAL_CW=	Default=Y
	If this is set to Y then a warning will be added to the modified code if manual modification is required to be performed by the user. Additionally the literal string, associated with the field name in the statements are flagged if the COM_LITERAL_WARN is set. The literal string for manual fields are NOT marked if the MARK_MANUAL_CW=N
	Possible values Y,N
ADD_DO_DOEND=	Default=N
	This parameter will insert DO/DOEND logic into every IF statement in a reporting mode object if not already present. This is required to ensure that certain reengineering modification is performed correctly in complex IF/ELSE statements in reporting mode objects. This parameter is used for reengineering of reporting mode objects only.
	Possible values Y,N
COMPONENT_OBJECT_NAME=	Default=######*%
	Used in Object Builder. This is the primary pattern mask used to determine the name of the generated objects.
	Note: For more information on the pattern mask refer to the chapter on Object Builder in the Natural Engineer Application Restructuring for Windows manual.
COMPONENT_OVERFLOW_NAME=	Default=######*%
	Used in Object Builder. This is an overflow pattern mask used when the primary pattern mask has been exhausted.
	Note: For more information on the pattern mask refer to the chapter on Object Builder in the Natural Engineer Application Restructuring for Windows manual.

Group Header / Parameter	Description
OVERWRITE_EXISTING=	This parameter allows for a setting to be set when Task Scheduler is used to execute modification. This setting will determine what is to happen with existing objects in the modification library.
	Possible values:
	YA – yes to all
	NA – no to all
	C – cancel
WEB-SUBR=	Default=N
	Determines whether subroutine or subprogram objects are to be generated for application Help sub-systems.
	If set to Y, then subroutine objects are generated. This is required if the Help sub-system references GDA data.
	If set to N, then subprogram objects are generated.
	Note: This parameter is only used by the Natural Engineer add-on component WebStar.
[EXCEL]	
EXE=	The full directory name where Microsoft EXCEL Spreadsheet is installed. For example:
	C:\PROGRAM FILES\MICROSOFT OFFICE\ OFFICE\EXCEL.EXE.
XLS=	The full directory name where the Natural Engineer EXCEL macro is installed. For example:
	C:\PROGRAM FILES\SOFTWARE AG\NATURAL ENGINEER\4.4.2\DATA\XLS\ NATENG.XLS.
RCF=	The full directory name where the file that links Natural Engineer and EXCEL is installed. For example:
	C:\PROGRAM FILES\SOFTWARE AG\ NATURAL ENGINEER\4.4.2\DATA\XLS\ NATENG.RCF.
	This file is generated internally by Natural Engineer and should match work file 15 of the Natural Engineer NATPARM module.

Group Header / Parameter	Description
[VISIO]	
EXE=	Default=C:\PROGRAM FILES\SOFTWARE AG\ NATURAL ENGINEER\4.4.2\BIN\ GENFLOW.EXE.
DAT=	Default=C:\PROGRAM FILES\SOFTWARE AG\NATURAL ENGINEER\4.4.2\DATA\ NATVISIO.TXT.
[REPORTER]	All reports default to Y for output, unless specified. Possible values are:
	Y Displays with Natural Reporter and generates a Comma Delimited file.
	N Displays to a Natural screen.
	X Displays using Microsoft Excel.
	NOTE PAD Displays in the Microsoft Notepad editor.
	B Displays to the Browser.
	W Displays using Microsoft Word.
DEFAULT-OUTPUT=	Default=Y
	This option can be used to set a global default destination for all textual reports. This alleviates the need to set the individual report-id parameters. Natural Engineer will still look to see if a Report id has been specifically set, if it does not find one, then this parameter will be used.
	Note: Individual reports can still be specified to act as overrides to this default setting.
GENERR=	Extract Source Code Log.
GBLDDM=	Global DDM View.
GBLDAO=	Impacted DDMs accessed by Objects.
GBLDDI=	Global DDM report for impacted DDMs.
GBLDIA=	Detailed Impacted DDMs accessed by Object.
GBLOBJ=	Cross Application used Objects.

Group Header / Parameter	Description
REPSCC=	Source Code Summary.
REPOIS=	Object Summary.
REPCAL=	Objects Referencing Objects.
REPCA2=	Objects Referenced by Objects.
REPDAO=	DDMs Accessed by Objects.
REPDDM=	DDMs Referenced.
REPDDR=	Database Data Requirements.
REPDII=	Data Item Inventory.
REPDVO=	DDMs Referenced by Objects.
REPEEX=	Extract Source Code Summary.
REPCAX=	Missing Natural Objects.
REPKWD=	Keyword Summary.
REPCMO=	Construct Models Referenced by Objects.
REPCUN=	Unused Natural Objects.
REPDOC=	Object Documentation.
REPEXX=	External Objects Referenced by Objects.
REPFLD=	Data Item Usage Inventory.
REPKEY=	Natural Keywords Referenced.
REPODF=	Objects Referenced by DDM Fields.
REPOQD=	Object Quality.
REPORD=	Object Reliability.
REPOMR=	Object Maintenance.
REPOSP=	Object Specifications.
REPOQS=	Object Quality Summary.
REPORS=	Object Reliability Summary.
REPSRC=	View Source Code.
	Note: Display defaults to B for the Browser.
IMPSCL=	Search Criteria.
IMPAIS=	Application Impact Summary.

Group Header / Parameter	Description
IMPEXX=	Impacted External Objects.
IMPOIS=	Object Impact Summary.
IMPPCO=	Impacted Predict Case Components.
IMPDII=	Data Item Impact Inventory.
IMPCMO=	Impacted Construct Models.
IMPFLD=	Data Item Impact Usage Inventory.
IMPEXN=	Impacted Natural Called Objects.
IMPEXW=	Impacted External Interfaces.
IMPSDI=	Data Item Impact Steplib Inventory.
IMRSRC=	View Impacted Source Code.
	Note: Display defaults to B for the Browser.
REMPRD=	Predict Changes.
REMAIS=	Application Modification Summary.
REMOIS=	Object Modification Summary.
REMCAL=	Change Audit Log.
REMCPY=	Impacted Objects Not Directly Modified.
REMDDR=	Database Data Requirements Modification.
REMDIM=	Data Item Inventory for Manual Modification.
REMDII=	Data Item Inventory Modification.
REMDIA=	Data Item Inventory for Automatic Modification.
REMCTS=	Category/Type Summary.
DELIMITER-CHAR=	Delimiter Character for CSV Files.
	Default = ,
[TREEVIEW]	
PATH=	Set to the location of your TREE directory. For example:
	PATH= C:\PROGRAM FILES\SOFTWARE AG \NATURAL ENGINEER\4.4.2\TREE
GENTREE=	Show diagram structure of information.

Group Header / Parameter	Description
EXE=	Default= C:\PROGRAM FILES\SOFTWARE AG \NATURAL ENGINEER\4.4.2\BIN\GENTREE.EXE
FILE=	Default= C:\PROGRAM FILES\SOFTWARE AG \NATURAL ENGINEER\4.4.2\DATA\ NATVISIO.TXT.
EXPAND=	Default=Y Allows you to determine if the GENTREE structure will be automatically expanded on the screen.
INDENT=	Default=500 Left indent.
HEIGHT=	The Height of the Window. Internal Use Only.
WIDTH=	The Width of the Window. Internal Use Only.
TOP=	The Top Co-ordinate of the Window. Internal Use Only.
LEFT=	The Left Co-ordinate of the Window. Internal Use Only.
SEPARATE_LINE_NO=	Default=N Allows you to determine if Code viewed via GENTREE will be automatically separated from the line numbers on the screen.
COLOUR_SYNTAX=	Default=N Allows you to determine if Code viewed via GENTREE will be automatically colored on the screen.

Global Standards

The Global Standards option allows for the specification of application standards that are to be used as the default settings within Natural Engineer. Global Standards are used as a criteria subset of Impact Analysis when using the search keyword APPLICATION STANDARDS and will report on how an application complies with acceptable Natural application standards.

Using Global Standards, it is possible to specify the Natural application standards employed at your site, or if none exist, specify the standards that you wish to apply and adhere to. Then by loading each of your applications into the Repository and running impact analysis using the search criteria Application Standards, it is possible to report on each application's compliance.

Once the Global Standards have been specified it is possible to save them as a PC file allowing each set of application standards to be reused. The file extension will be 'STD'. These files will default to the Natural Engineer DATA folder, the path is X:\PROGRAM FILES\SOFTWARE AG\NATURAL ENGINEER\4.4.2\DATA (where X: is the drive on which Natural Engineer has been installed).

Note: It is possible to override the default settings using the Application Standards option from the Application menu. This will override the Global Standards for the current selected application only.

For more information on the Application Standards option refer to Chapter 1 in the Natural Engineer Application Analysis & Modification for Windows manual.

Global Standards Definition Window

All the specifications for Global Standards are defined using the Global Standards Definition screen.

This is accessed by using the following menu navigation: Options➔Administration➔ Global Standards from the main Natural Engineer screen.

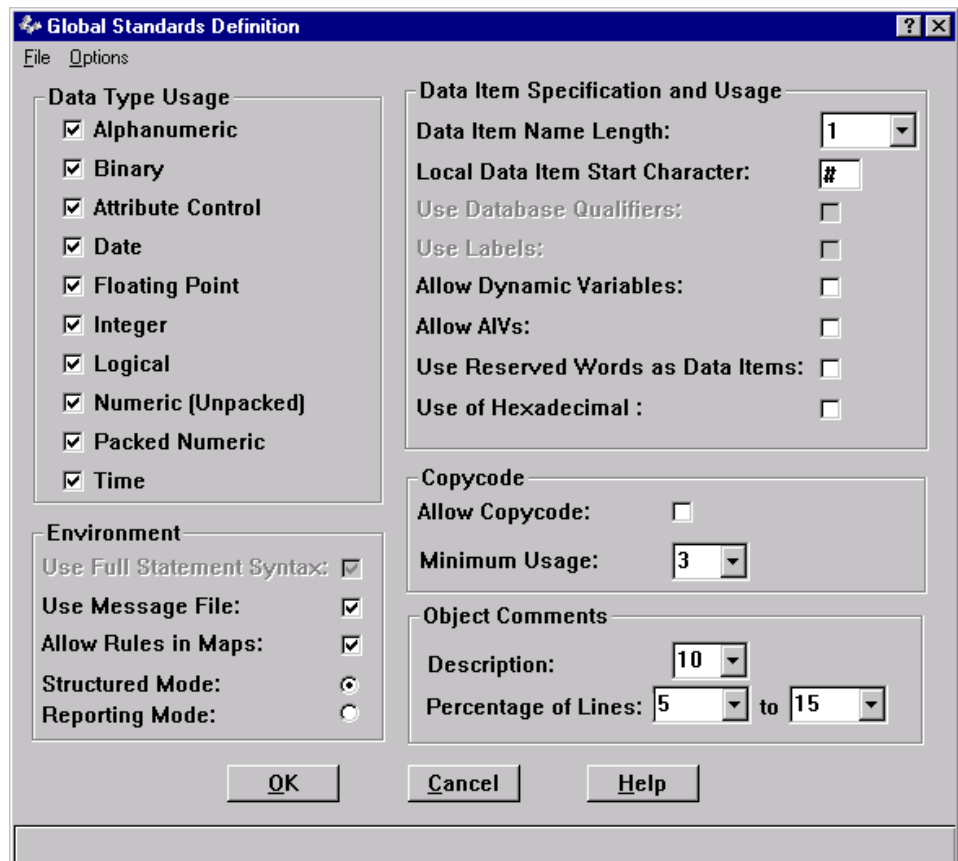The following Figure 1-4 illustrates the Global Standards Definition screen.

Figure 1-4 Global Standards Definition screen

MENU ITEMS	OPTIONS	DESCRIPTION
File	**Open**	Open a previously saved Global Standards file.
	Save As	Save the currently defined Global Standards.
	Standards Preferences	Opens a sub-menu with two further options which influence the Impact execution:
		Preferences
		This option lists each of the Global Standards main options and is used as a control during Impact analysis as to which standards are to be analyzed.

MENU ITEMS	OPTIONS	DESCRIPTION
		Note: Refer to the section Global Standards Preferences for more information on this option.
		Object Types
		This option lists all the object types, which can be selected and is used to refine the objects analyzed during Impact Execution.
		Note: Refer to the section Global Standards Object Types for more information on this option.
	Exit	Exits the Global Standards Definition screen.
Options	**Standards Labels/Data Manipulation**	Opens a new screen offering further options, which relate to labels and data manipulation statements.
		Note: Refer to the section Global Standards Labels and Data Manipulation options for more information on this option.

SCREEN ITEMS	DESCRIPTION
Data Type Usage	Identifies Data Type usage. If data items are not checked then they will be reported as non-standard. Data Types available are:

- **Alphanumeric**
- **Binary**
- **Attribute Control**
- **Date**
- **Floating Point**

- **Integer**
- **Logical**
- **Numeric (Unpacked)**
- **Packed Numeric**
- **Time**

Environment	Identifies various environmental type options. Environment options are:

Use Full Statement Syntax

Standards allow for full syntax statements to be used, rather than partial syntax. (Not currently available.)

Use Message File

Standards allow for specifying the use of a message file for messages, rather than messages embedded in the objects.

SCREEN ITEMS	DESCRIPTION
	Allow Rules in Maps Standards allow for the use of rules in maps.
	Structured Mode If Structured Mode is selected, then the Application standard is to allow Structured Mode objects.
	Reporting Mode If Reporting Mode is selected, then the Application standard is to allow Reporting Mode objects.
Data Item Specification and Usage	Identifies standards specific to Data Items. Data Item Specification and Usage options are:
	Data Item Name Length A number from 1 to 32 can be selected. Natural Engineer will identify data items that exceed this number.
	Local Data Item Start Character The first character required for locally defined data items.
	Use Database Qualifiers Database data items must have the associated database qualifier name.
	Use Labels Statements that can have labels, must use labels.
	Allow Dynamic Variables Dynamic variables, such as &variables are permitted by standards.
	Allow AIVs Application Independent Variables are permitted by the standards.
	Use Reserved Words as Data Items If selected, data item names may also be reserved words.
	Use of Hexadecimal If selected, hexadecimal code is permitted by standards.
Copycode	Identifies standards for usage of copycode. Copycode options are:
	Allow Copycode If selected, applications may use Copycode objects.
	Minimum Usage This can be set between 0 and 99 and standards will report any copycodes that are not referenced that number of times.

SCREEN ITEMS	DESCRIPTION
Object Comments	Identifies standards for comments within an object. Object Comments options are: **Description** This can be 0 to 100 and requires at least that many comment lines at the start of the object. **Percentage of Lines** This is a percentage range from 1 to 100, which specifies the comment number standard as required to fall within that range.

BUTTON NAME	DESCRIPTION
OK	Saves the selections made and returns back to the main Natural Engineer screen.
Cancel	Cancels any inputs made and returns back to the main Natural Engineer screen.
Help	Invokes the Global Standards help.

Global Standards Preferences

The Global Standards Preferences option allows the user to limit which standards are actually checked for during Impact execution.

The Global Standards Preferences are accessed from the Global Standards Definition screen using the menu navigation: File➜Standards Preferences➜Preferences.

The Following Figure 1-5 illustrates the Standards Preferences screen.
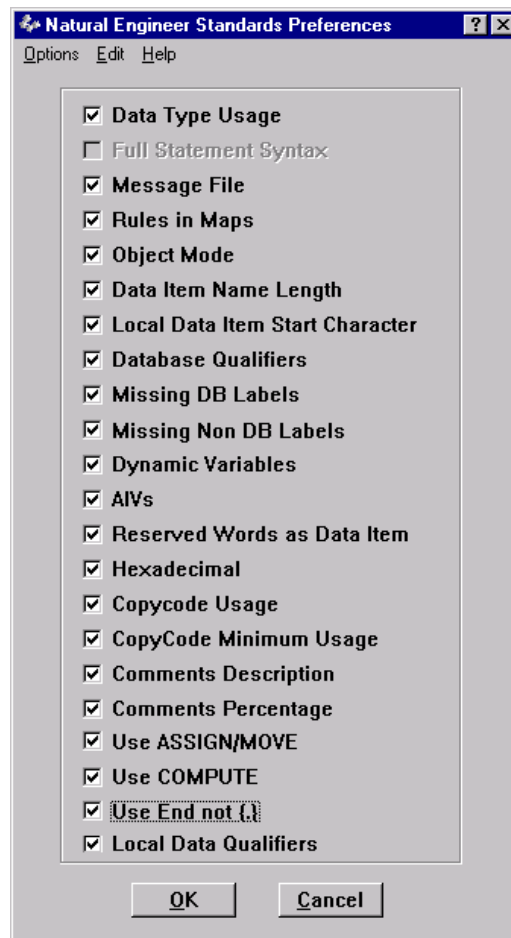
Figure 1-5 Global Standards Preferences screen

MENU ITEMS	OPTIONS	DESCRIPTION
Options	**Close**	Closes the Standards Preferences window and returns to the Global Standards Definition screen.
Edit	**Select All**	Selects all the Standards.
	Deselect All	De-selects all the Standards.
Help		Invokes the Global Standards help.

SCREEN ITEMS	DESCRIPTION
Standards	Each standard is listed. A tick in the check box next to each standard indicates that the standard will be checked for. If a check box is blank then that standard will not be referenced during Impact execution. The standards list shows:

- **Data Type Usage**
- **Full Statement Syntax**
- **Message File**
- **Rules in Maps**
- **Object Mode**
- **Data Item Name Length**
- **Local Data Item Start Character**
- **Database Qualifiers**
- **Missing DB Labels**
- **Missing Non DB Labels**
- **Dynamic Variables**
- **AIVs**
- **Reserved Words as Data Items**
- **Hexadecimal**
- **Copycode Usage**
- **Copycode Minimum Usage**
- **Comments Description**
- **Comments Percentage**
- **Use ASSIGN/MOVE**
- **Use COMPUTE**
- **Use END not {.}**
- **Local Data Qualifiers**

BUTTON NAME	DESCRIPTION
OK	Saves the selections made and returns back to the Global Standards Definition screen.
Cancel	Cancels any inputs made and returns back to the Global Standards Definition screen.
Help	Invokes the Global Standards help.

Global Standards Object Types

The Global Standards Object Types option allows the user to limit which objects are actually checked for during Impact execution.

The Global Standards Object Types are accessed from the Global Standards Definition screen using the menu navigation: File➔Standards Preferences➔Object Types.

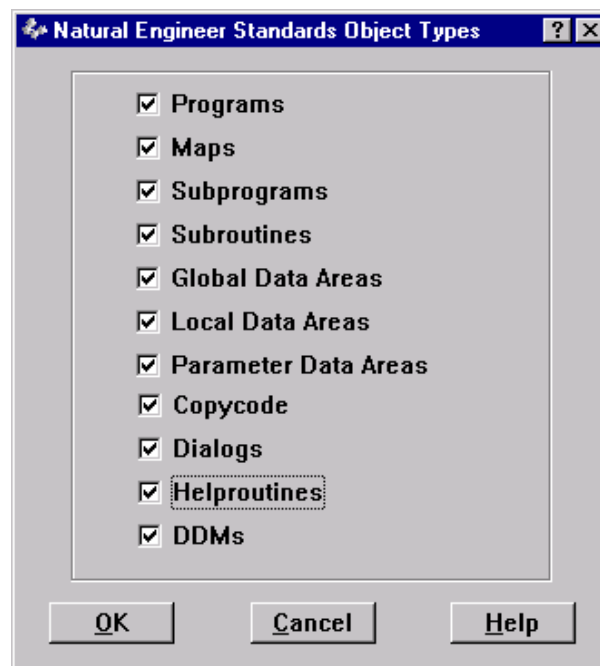The Following Figure 1-6 illustrates the Standards Object Types screen.

Figure 1-6 Standards Object Types screen

SCREEN ITEMS	DESCRIPTION
Object Types	Each object is listed. A tick in the check box next to each object type indicates that the object type will be checked for. If a check box is blank then that object type will not be referenced during Impact execution. The object types list shows:

- **Programs**
- **Maps**
- **Subprograms**
- **Subroutines**
- **Global Data Areas**
- **Local Data Areas**
- **Parameter Data Areas**
- **Copycode**
- **Dialogs**
- **Helproutines**
- **DDMs**

BUTTON NAME	DESCRIPTION
OK	Saves the selections made and returns back to the Global Standards Definition screen.
Cancel	Cancels any inputs made and returns back to the Global Standards Definition screen.
Help	Invokes the Global Standards help.

Global Standards Labels and Data Manipulation Options

The Global Standards Labels and Data Manipulation options allows further standards to be checked for during Impact execution.

The Global Standards Object Types are accessed from the Global Standards Definition screen using the menu navigation: Options➔Standards Labels and Data Manipulation.

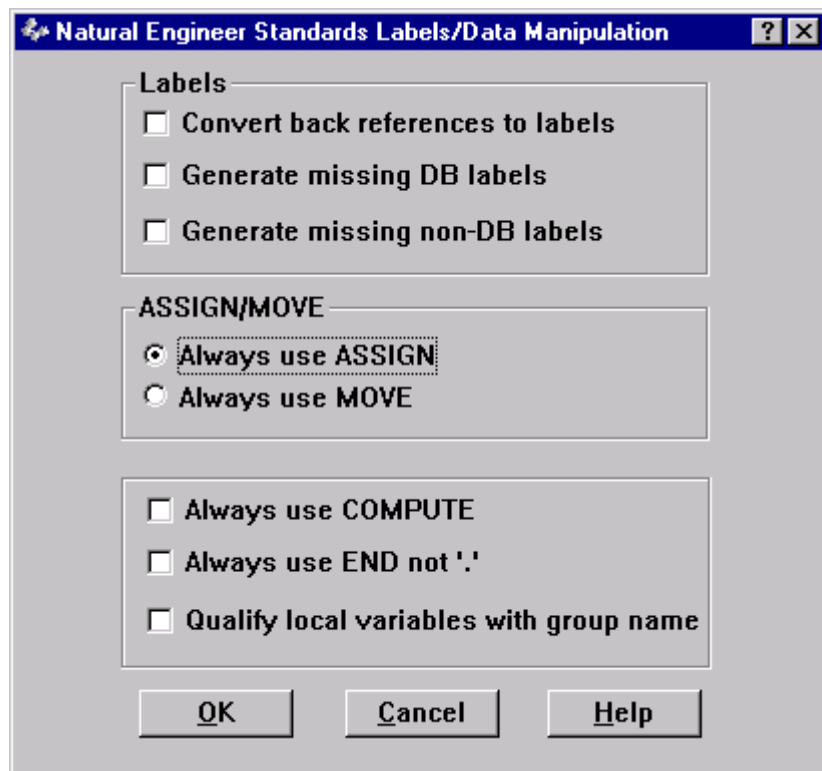The Following Figure 1-7 illustrates the Standards Labels and Data Manipulation options screen.

Figure 1-7 Standards Label and Data Manipulation options screen

SCREEN ITEMS	DESCRIPTION
Labels	Identifies various label options. These options will generate modification details after impact execution, i.e., the modification option can be executed to add labels and/or convert back references. Label options are:
	Convert back references to labels
	Identifies back references, which can be converted to labels.
	Note: When this option is selected, the Generate missing DB labels and Generate missing non-DB labels options are automatically selected. The Convert back references to labels option relies on these to create the labels first.
	Generate missing DB labels
	Identifies any Database access statements, which have no labels associated with them. For Example:
	READ, FIND or HISTOGRAM.
	Note: This option is mutually exclusive to both the Convert back references to labels and Generate missing non-DB labels options.
	Generate missing non-DB labels
	Identifies any non-Database access statements which have no labels associated with them. For Example:
	FOR and REPEAT loops.
	Note: This option is mutually exclusive to both the Convert back references to labels and Generate missing DB labels options.
ASSIGN/MOVE	Identifies the use of ASSIGN or MOVE statements. ASSIGN/MOVE options are:
	Always use ASSIGN
	Any MOVE statements are located and reported.
	Always use MOVE
	Any ASSIGN statements are located and reported.

SCREEN ITEMS	DESCRIPTION
Miscellaneous	Identifies standards for miscellaneous options. Miscellaneous options are:
	Always use COMPUTE
	Any ASSIGN statements containing arithmetic constructs are located and reported. For Example:
	ASSIGN #TOTAL = #NET-TOTAL + 1
	Always use END not {.}
	Any use of '.' as the END statement is located and reported.
	Qualify local variables with group name
	Any local variables that are defined within a group and have no group name qualifier are located and reported. For Example:
	0100 01 #TAX-GROUP
	0110 02 #TAX-RATE (N1.5)
	0120 02 #TAX-RATE2 (N3)
	::::
	0300 COMPUTE #TOTAL-PAY = #ITEM-COST * #TAX-RATE
	#TAX-RATE at line number 0300 would be reported as it should have the group high level qualifier #TAX-GROUP prefix, i.e.,
	#TAX-GROUP.#TAX-RATE.

BUTTON NAME	DESCRIPTION
OK	Saves the selections made and returns back to the Global Standards Definition screen.
Cancel	Cancels any inputs made and returns back to the Global Standards Definition screen.
Help	Invokes the Global Standards help.

2

ADDING AN ICON TO THE NATURAL STUDIO TOOLBAR

Chapter Overview

This chapter describes how to set up an automatic link to Natural Engineer from within Natural Studio, using an icon on the Natural Studio toolbar.

This provides a round-trip mechanism allowing Natural Engineer to be invoked from within Natural Studio in a single operation.

How to add an icon to the Natural Studio toolbar

► **Open the Natural Studio Tools option**

1. To add an Icon to the Toolbar within Natural Studio, you must add a new toolbar using the following option from the Natural Studio menu: Tools➜Customize.

    The following Figure 2-1 illustrates the Customizing Toolbar option.
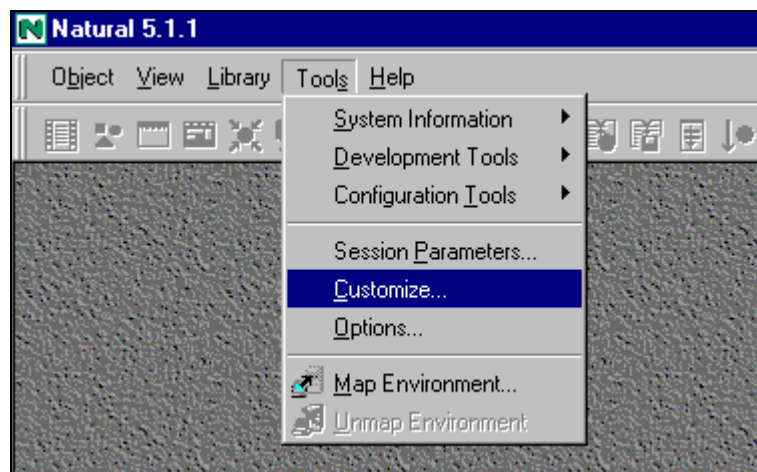
Figure 2-1 Customizing Toolbar Option

2. This presents the Customize dialog where you should select the Toolbars tab.

3. Use the New button to add a new toolbar. You will be asked to specify a name for the Toolbar. For example: Natural Engineer.

The following Figure 2-2 illustrates adding a New Toolbar option.
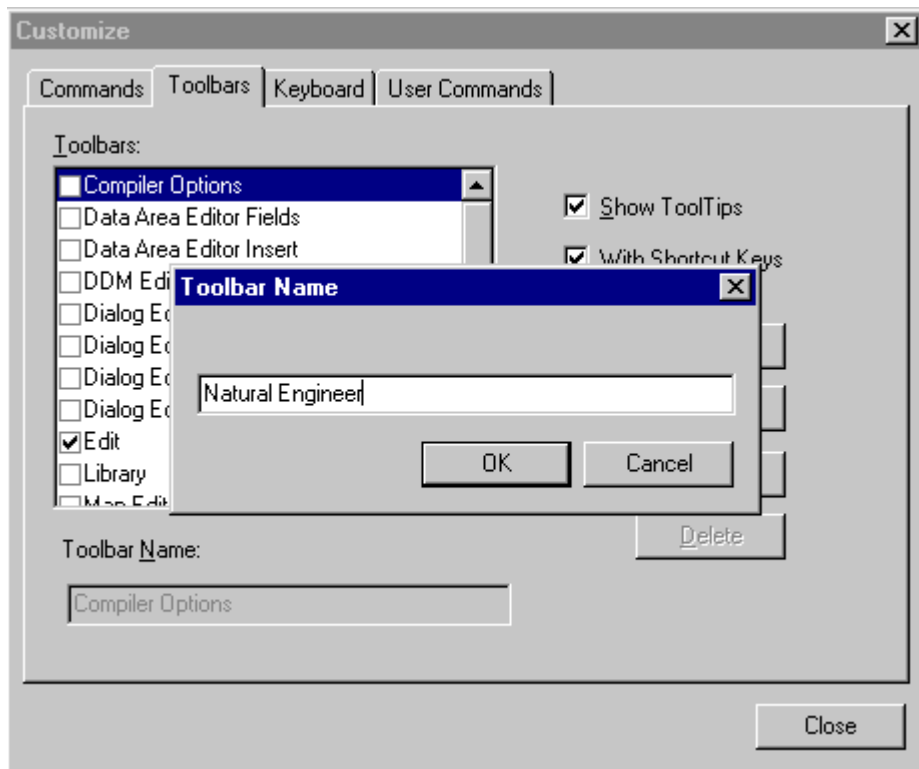
Figure 2-2 Adding a New Toolbar

► **Assign a User Command**

4. The next step is to assign a User Command to the new Natural Engineer toolbar. This can be done by selecting the User Commands tab on the Customize dialog.

5. Select User Command 1 and type in 'LOGON SYSNEE;NATENG-D' as the Natural command.

6. Click on the Assign button to add the command.
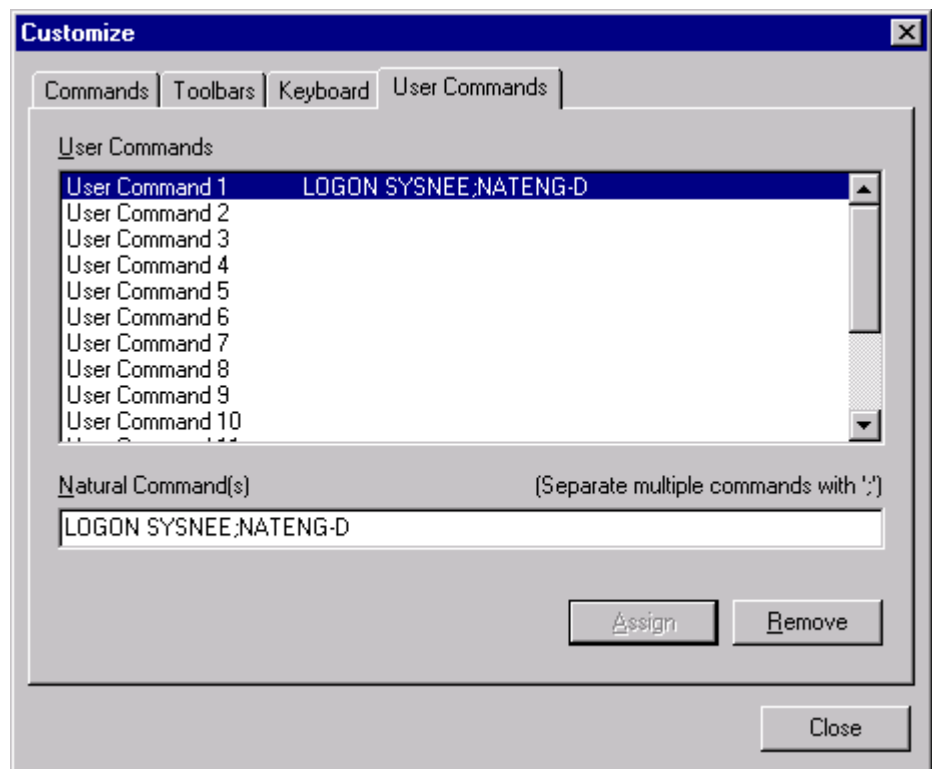
The following Figure 2-3 illustrates the assign a User Command.

Figure 2-3 Assign a User Command

►   **Add the User Command to the Natural Engineer Toolbar**

7. The next step is to add the User Command to the new Natural Engineer Toolbar. To do this, select the Commands tab on the Customize dialog.

8. Then select User Commands from the Categories drop down menu.

> The following Figure 2-4 illustrates the Customize dialog after the category 'User Commands' has been selected, and then the previously defined User Command 1 selected.
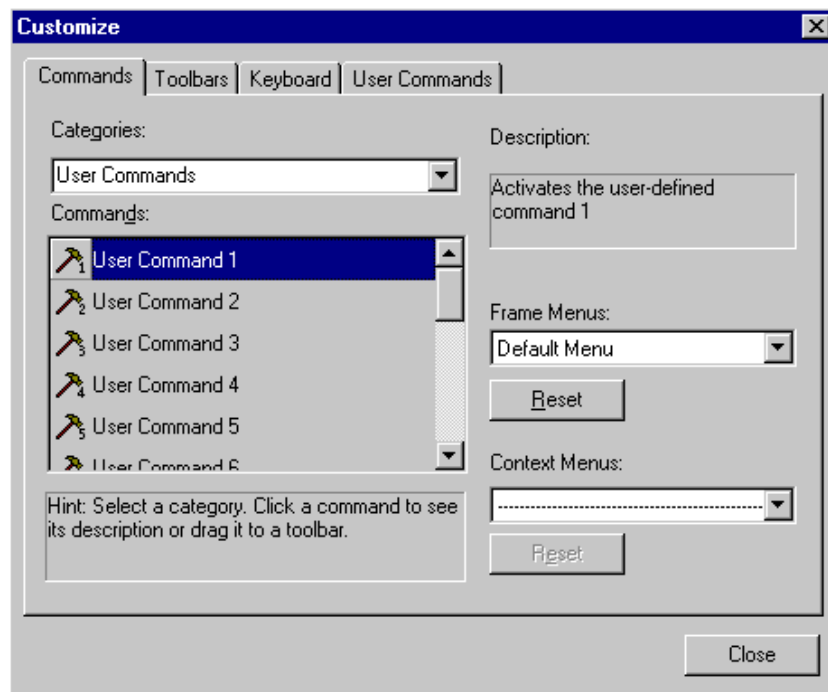
Figure 2-4 Selecting the new User Command 1

9. Select User Command 1 from the commands listed under the Commands list box by clicking down the left mouse button and holding it; drag the command to the Natural Engineer Toolbar.

> The following Figure 2-5 illustrates the Natural Engineer Toolbar with the User Command added.
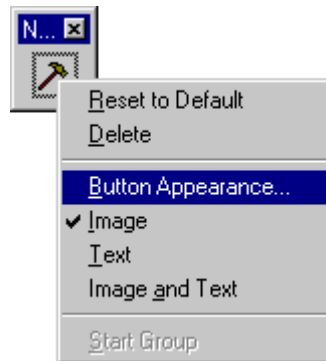

Figure 2-5 Natural Engineer Toolbar with the User Command added

► **Customize the appearance of the Natural Engineer toolbar button**

It is possible to change the appearance of the User Command to make it more easily identifiable.

10. This can be done by leaving the Customize dialog still open with the Natural Engineer Toolbar selected, use the right mouse button to select the User Command in the toolbar. This will present a sub menu of options, from here select Button Appearance.

The following Figure 2-6 illustrates how to change the appearance of the Toolbar button.

Figure 2-6 Changing the appearance of the Toolbar Button

11. To make the User Command more easily identifiable, the button appearance should be changed to show text 'NEE'.

The following Figure 2-7 illustrates the Button Appearance dialog with the appearance settings changed to show text only, with text 'NEE'.
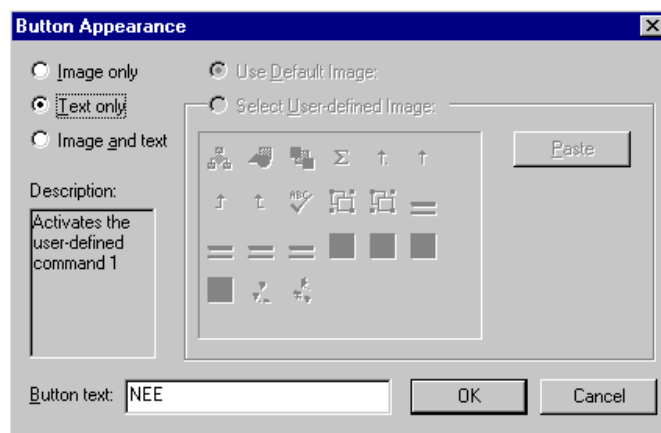

Figure 2-7 Button Appearance changed to show Text 'NEE' only

The following Figure 2-8 illustrates the new appearance of the Natural Engineer Toolbar.

Figure 2-8 New appearance of the Natural Engineer Toolbar

Once you have done this, the Natural Engineer Toolbar is now complete and you may drag it to the main Natural Toolbars. The following Figure 2-9 illustrates the new Natural Engineer Toolbar in position.
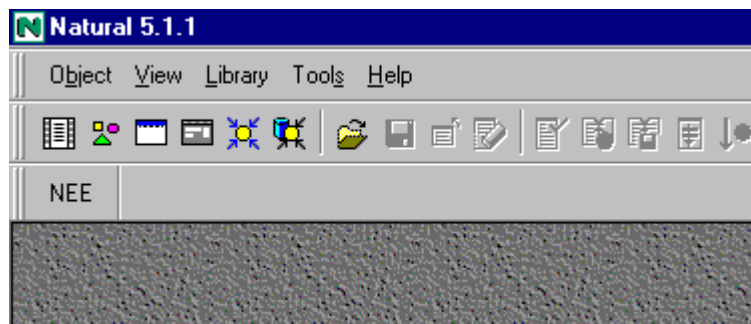

Figure 2-9 Natural Engineer Toolbar in position

3

CONFIGURATION

Chapter Overview

This chapter describes some of the considerations and modifications you can make before running the Natural Engineer processes.

The topics that are covered are:

1. Environment sizing

2. Transferring Repository

3. Supplied default data files

Environment Sizing

This section describes the environment sizing considerations based on one million lines of source code.

Hard Disk Space

Natural Engineer writes an Extract file ("application name".OUT) which contains the neutral records for loading into the Natural Engineer Repository.

- For the PC platforms, 1 million lines of code require 120 Meg of hard disk space.

- For the MVS platform, 1 million lines of code requires 130 cylinders of disk space. This file can also be written to tape.

Adabas Database

Space Requirements

The main consideration when estimating space requirements for Natural Engineer depends upon the complexity of the code, for example how many include routines are present (LDAs, GDAs, PDAs, COPYCODEs etc). The more included routines, the larger the Repository size.

An average record size is 135 bytes.

For 1 million lines of code and more, this would equate to the following:

	Natural Studio	MVS Mainframe	
	Adabas 2.2.3 on Windows	**3390**	**3380**
ASSO	220 MB	520 cyls	620 cyls
DATA	250 MB	340 cyls	365 cyls
WORK	50 MB		

Nucleus/ADARUN Parameters

The nucleus/ADARUN parameter settings listed below do not depend on the number of lines of code being processed. However, they reflect the recommended minimum set for any Natural Engineer Repository.

Parameter	Setting	Comment
LQ	30,000	
LP	1,600	
LU	16,000	
LOGGING		Set to blank.
LFP	40,000	
LS	20,000	
TNAA	7200	
TNAE	7200	
TNAX	7200	
PLOG	NO	

Transferring Repository

Some sites or projects may not have sufficient network capability to employ an Entire Network solution. However, you may want to use the processing power of the mainframe with the GUI capabilities of the PC.

One method of achieving this is to duplicate the mainframe Natural Engineer Repository, following the EXTRACT, LOAD and IMPACT stages, to the PC.

Transferring Natural Engineer Repository from Mainframe to PC

The following steps describe the processes involved to achieve a successful transfer:

To transfer the Natural Engineer Repository from the mainframe to the PC environment requires the following steps to be followed:

1. Check the Natural Engineer Repository File layouts

2. Decompress the file on the mainframe

3. Transfer the decompressed file to the PC

4. Create a Repository file on the PC

5. Compress and load the decompressed mainframe file onto the PC.

Each of these steps is described in more detail below.

Check Natural Engineer Repository File Layouts

Prior to beginning the process, the file layouts of the Natural Engineer Repository file on the PC and the Mainframe need to be checked to ensure that they are identical.

To do this run ADAREPs on the mainframe and the PC and perform a visual check. If they are not identical then they need to be brought into line.

Decompress the File on the Mainframe

The first stage in the process is to decompress the Natural Engineer Repository data on the mainframe.

Example ADACMP JCL (MVS) to Decompress File on the Mainframe

```
000001 //XGSL1DE JOB CLASS=K,NOTIFY=XGS1,MSGCLASS=X,MSGLEVEL=(1,1)
000002 //*
000003 //JOBLIB   DD   DSN=RZDBA.DB177.NEWLOAD,DISP=SHR
000004 //         DD   DSN=RZDBA.DB177.LOAD,DISP=SHR
000005 //*
000006 //DECOMP   EXEC PGM=ADARUN,
000007 //              REGION=4M,
000008 //              COND=(1,LT)
000009 //DDCARD   DD   *
000010 ADARUN PROG=ADACMP,SVC=249,DEVICE=3390,DB=177
000011 /*
000012 //DDASSOR1 DD DSN=DB177.SYSF.ASSOR1,DISP=SHR
000013 //DDDATAR1 DD DSN=DB177.SYSF.DATAR1,DISP=SHR
000014 //DDWORKR1 DD DSN=DB177.SYSF.WORKR1,DISP=SHR
000015 //DDAUSBA  DD DSN=XGS1.DECOMP.F065.DATAV,
000016 //              DISP=(,CATLG,DELETE),UNIT=DISK,
000017 //              VOL=SER=EUP001,
000018 //              SPACE=(CYL,(3,2),RLSE)
000019 //DDFEHL   DD SYSOUT=*
000020 //DDPRINT  DD SYSOUT=*
000021 //SYSUDUMP DD SYSOUT=*
000022 //DDDRUCK  DD SYSOUT=*
000023 //DDKARTE  DD   *
000024 ADACMP DECOMPRESS INFILE=65
000025 /*
```

Example of the Decompressed File created

```
DATA SET NAME :  XGSL1.DECOMP.F065.DATAV

     GENERAL DATA
       VOLUME SERIAL  :  EUP001
       DEVICE TYPE    :  3380              CURRENT-ALLOCATION
       ORGANIZATION   :  PS                  ALLOCATED CYLINDERS:  2
       RECORD FORMAT  :  VB                  ALLOCATED EXTENTS :   1
       RECORD LENGTH  :  23472
       BLOCK SIZE     :  23476             CURRENT UTILIZATION
       ALLOCATION TYPE:  CYL                 PERCENT USED:  97
       1ST EXTENT     :  2        CYL 0   TRK
       SECONDARY      :  2
       SECURITY       :  NONE
```

Example of the Decompress Job Output

```
 A D A C M P   V6.2  SM1   DBID = 00177  STARTED          1999-02-01
14:21

 PARAMETERS:
 -----------

 ADACMP DECOMPRESS INFILE=65


 DECOMPRESS PROCESSING STATISTICS:
 --------------------------------
   NUMBER OF RECORDS READ                    911

   NUMBER OF INCORRECT RECORDS                 0

   NUMBER OF DECOMPRESSED RECORDS            911

 A D A C M P  TERMINATED NORMALLY                        1999-02-01
14:21
```

Transfer the Decompress File to the PC

Now transfer the decompress file that you have just created to the PC, in Binary, non-translated format. FTP is recommended for this transfer.

Create Repository File on PC

If a Repository file does not currently exist on the PC then one needs to be created using the FDT file supplied in X:\PROGRAM FILES\SOFTWARE AG\NATURAL ENGINEER\4.4.2\ADA folder (where X is the directory on which Natural Engineer was installed).

This would typically be performed by using the DBA Workbench utility.

Compress and Load File on the PC

The next stage is to compress and load the decompressed file onto the Repository file on the PC.

The following steps are a guide to this process.

1. Highlight the file within DBA workbench.

The following Figure 3-1 illustrates the DBA Workbench file list screen with the Repository file selected.
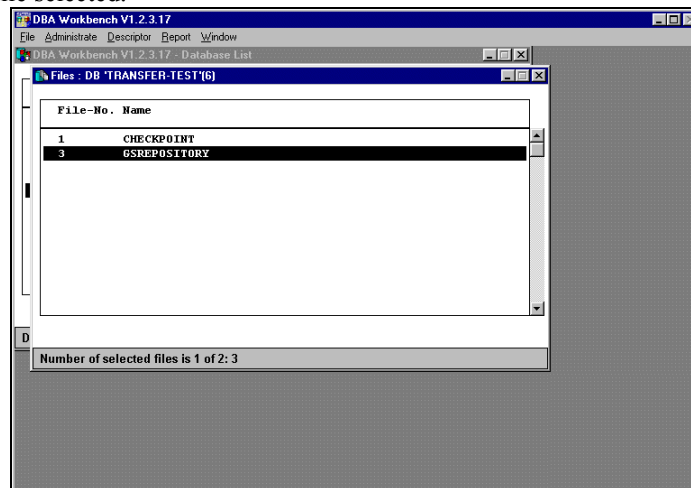
Figure 3-1 DBA Workbench file list screen

2. Select, File, Compress from the main menu:

The following Figure 3-2 illustrates the DBA Workbench file compress option.
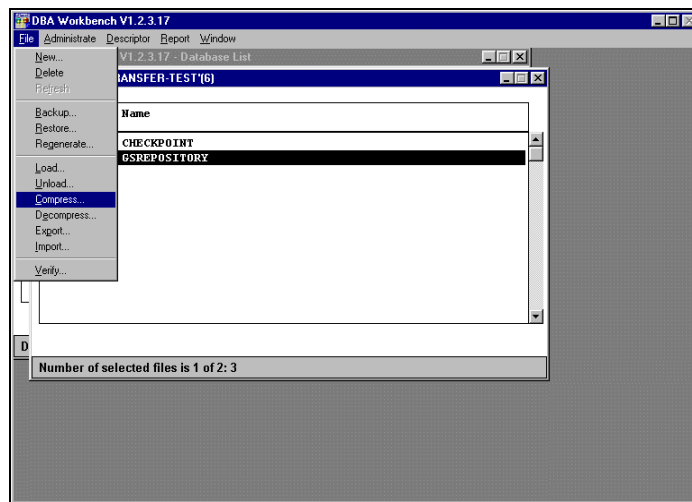
Figure 3-2 DBA Workbench file compress option

3. The following parameters should be entered:

The Data file is the decompressed file you copied to the PC from the mainframe.

The following Figure 3-3 illustrates the Compress File options screen within DBA Workbench.

Figure 3-3 Compress File screen

4. The LOAD screen will be shown

The following Figure 3-4 illustrates the Load File options screen within DBA Workbench.
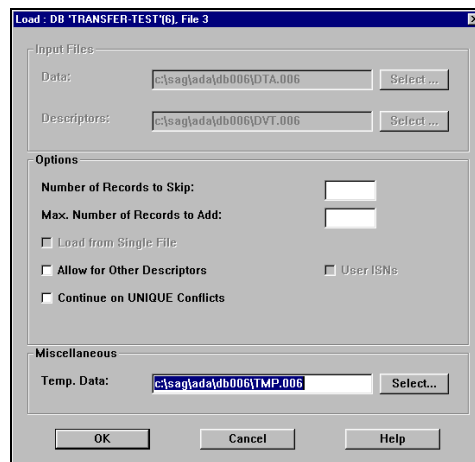

Figure 3-4 Load File screen

Click OK to start the Compress and Load process,

5. The Compress and Load jobs should produce three output windows. Sample output in each is shown below.

The first window is showing the conversion of EBCDIC to ASCII format:

- Start converting C:\DECOMP.F065.DATAV

- converting 911 records

The second is the output from ADACMP, which is compressing the data:

```
%ADACMP-I-STARTED,      01-FEB-1999 14:14:10, Version 2.2.3.22, (WINDOWS 95)
%ADACMP-I-NACTL, ADABAS nucleus active on local node

Descriptor summary:

Descriptor VM :          80 bytes,          10 occ
Descriptor S2 :      19,005 bytes,         905 occ
Descriptor S3 :      22,625 bytes,         905 occ
Descriptor S5 :         528 bytes,          28 occ
Descriptor S6 :       2,068 bytes,          94 occ
Descriptor S7 :       1,899 bytes,          94 occ
Descriptor S8 :      17,646 bytes,         346 occ
Descriptor SA :         489 bytes,          10 occ
Descriptor SB :       6,240 bytes,         120 occ
Descriptor SC :       9,320 bytes,         253 occ
Descriptor SD :      20,414 bytes,         346 occ
Descriptor SF :       2,565 bytes,          95 occ
Descriptor SI :           0 bytes,           0 occ
Descriptor SJ :         604 bytes,          24 occ
Descriptor SK :      13,582 bytes,         905 occ
Descriptor SL :         410 bytes,          10 occ
Descriptor SM :       1,380 bytes,          60 occ
Descriptor SN :         572 bytes,          32 occ
Descriptor SO :       9,669 bytes,         328 occ
Descriptor SQ :       2,750 bytes,          53 occ
Descriptor SR :       7,045 bytes,         328 occ

%ADACMP-I-CMPINP, Number of records read      :        911
%ADACMP-I-CMPERR, Number of incorrect records  :          0
%ADACMP-I-CMPREC, Number of compressed records :        911
%ADACMP-I-CMPLCR, Largest compressed record    :       1476

%ADACMP-I-IOCNT,       6 IOs on dataset CMPDTA
%ADACMP-I-IOCNT,       7 IOs on dataset CMPDVT
%ADACMP-I-IOCNT,       0 IOs on dataset CMPERR
%ADACMP-I-IOCNT,     911 IOs on dataset CMPIN
%ADACMP-I-TERMINATED,  01-FEB-1999 14:14:11, elapsed time: 00:00:01
```

The third is the output from ADAMUP, which is loading the data into the newly created Repository file:

```
%ADAMUP-I-STARTED,      01-FEB-1999 14:14:12, Version 2.2.3.22, (WINDOWS 95)
%ADAMUP-I-DBON, database 6 accessed online

%ADAMUP-W-OPNERR, dataset SORT1 , file C:\sag\ada\db006\SORT1 could not be opened
%ADAMUP-W-ERRNOM, errno (2): No such file or directory
%ADAMUP-W-OPNERR, dataset TEMP1 , file C:\sag\ada\db006\TEMP1 could not be opened
%ADAMUP-W-ERRNOM, errno (2): No such file or directory

%ADAMUP-I-DSUPD, data storage being modified
%ADAMUP-I-DSDONE, data storage completed

%ADAMUP-I-SRTWPSZE, work pool size 1500000 bytes

%ADAMUP-I-SORTDESC, sorting descriptor S3
%ADAMUP-I-LOADDESC, loading descriptor S3

%ADAMUP-I-SORTDESC, sorting descriptor S2
%ADAMUP-I-LOADDESC, loading descriptor S2

%ADAMUP-I-SORTDESC, sorting descriptor SD
%ADAMUP-I-LOADDESC, loading descriptor SD

%ADAMUP-I-SORTDESC, sorting descriptor SK
%ADAMUP-I-LOADDESC, loading descriptor SK

%ADAMUP-I-SORTDESC, sorting descriptor S8
%ADAMUP-I-LOADDESC, loading descriptor S8

%ADAMUP-I-SORTDESC, sorting descriptor SO
%ADAMUP-I-LOADDESC, loading descriptor SO

%ADAMUP-I-SORTDESC, sorting descriptor SC
%ADAMUP-I-LOADDESC, loading descriptor SC

%ADAMUP-I-SORTDESC, sorting descriptor SR
%ADAMUP-I-LOADDESC, loading descriptor SR

%ADAMUP-I-SORTDESC, sorting descriptor SB
%ADAMUP-I-LOADDESC, loading descriptor SB

%ADAMUP-I-SORTDESC, sorting descriptor SF
%ADAMUP-I-LOADDESC, loading descriptor SF

%ADAMUP-I-SORTDESC, sorting descriptor SQ
%ADAMUP-I-LOADDESC, loading descriptor SQ

%ADAMUP-I-SORTDESC, sorting descriptor S6
%ADAMUP-I-LOADDESC, loading descriptor S6

%ADAMUP-I-SORTDESC, sorting descriptor S7
%ADAMUP-I-LOADDESC, loading descriptor S7

%ADAMUP-I-SORTDESC, sorting descriptor SM
%ADAMUP-I-LOADDESC, loading descriptor SM
```

```
%ADAMUP-I-SORTDESC, sorting descriptor SN
%ADAMUP-I-LOADDESC, loading descriptor SN

%ADAMUP-I-SORTDESC, sorting descriptor SJ
%ADAMUP-I-LOADDESC, loading descriptor SJ

%ADAMUP-I-SORTDESC, sorting descriptor S5
%ADAMUP-I-LOADDESC, loading descriptor S5

%ADAMUP-I-SORTDESC, sorting descriptor SA
%ADAMUP-I-LOADDESC, loading descriptor SA

%ADAMUP-I-SORTDESC, sorting descriptor SL
%ADAMUP-I-LOADDESC, loading descriptor SL

%ADAMUP-I-SORTDESC, sorting descriptor VM
%ADAMUP-I-LOADDESC, loading descriptor VM

%ADAMUP-I-NULLDESC, no values for descriptor SI

%ADAMUP-I-DVTPASSES, DVT records processed 21 times

%ADAMUP-I-ADDREC, file 3, 911 records added

%ADAMUP-I-IOCNT,       33 IOs on dataset DATA
%ADAMUP-I-IOCNT,       73 IOs on dataset ASSO
%ADAMUP-I-IOCNT,       32 IOs on dataset MUPDTA
%ADAMUP-I-IOCNT,      651 IOs on dataset MUPDVT
%ADAMUP-I-IOCNT,        0 IOs on dataset MUPTMP
%ADAMUP-I-TERMINATED,  01-FEB-1999 14:14:14, elapsed time: 00:00:02
```

Common Load Problems

NAT3048 received during Load

This has two possible causes. The first is that someone is logged on using the file. The solution here is to log them off during the Load process.

It is also received if a previous attempt to Load the file failed. To clear this, highlight the database and from the main menu, select DATABASE, OPERATE, RESET UCB as shown below:

The following Figure 3-5 illustrates the option Reset UCB within DBA Workbench.
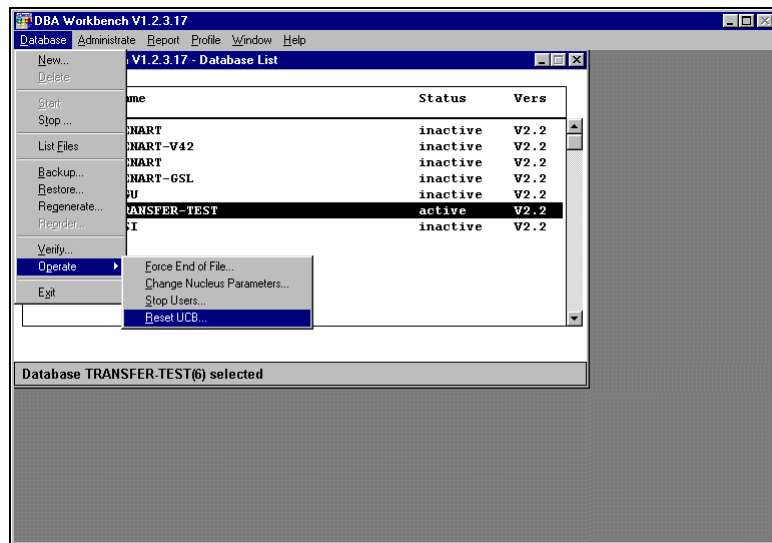
Figure 3-5 Reset UCB option

This will then present a list of items that require resetting. Select the appropriate entry to reset.

Supplied Data Files

Natural Engineer comes supplied with several data files within the DATA folder that is installed in the X:\PROGRAM FILES\SOFTWARE AG\NATURAL ENGINEER\ 4.4.2\ DATA folder (where X is the directory on which Natural Engineer was installed).

The installed DATA folder contains:

1. VSD folder

2. XLS folder

3. ###DEF01.ISC file

4. CODEINT.IRE file

5. OBJPRES.IRE file

6. OBJTECH.IRE file

VSD Folder

This folder contains various stencils and templates used by Microsoft Visio 2000 to draw diagrams for the following Natural Engineer options:

- Structure Flow Diagram.

- Program Flow Logic Diagram.

Note: For more information on these two options refer to Chapter 2 in the Natural Engineer Application Documentation for Windows manual.

The contents of the Vsd folder are:

1. GENFLOW.VSS

This is the stencil file used by the Structure Flow Diagram option.

2. GENFLOW.VST

This is the template file used by the Structure Flow Diagram option.

3. GENJSP.VSS

This is the stencil file used by the Program Flow Logic Diagram option.

    4.   GENJSP.VST

This is the template file used by the Program Flow Logic Diagram option.

XLS Folder

This folder contains the required files used by Microsoft Excel when the Excel reporting display mode has been selected to view a Natural Engineer report.

Note: For more information on reporting display modes and all the Natural Engineer reports refer to the Natural Engineer Reporting manual.

The contents of the XLS folder are:

1.   **Legend.gif**

This is the image used for the Application Metrics graphical report: Object Type Summary.

The following Figure 3-6 illustrates the Legend.gif image.

Figure 3-6 Legend.gif image

2.   **Nateng.xls**

This is the Microsoft Excel worksheet containing the relevant macros to display the various textual reports using Microsoft Excel.

###DEF01.ISC File

This is the default file used during the specification of impact search criteria when the search keyword MULTI SEARCH has been selected.

The contents of this file are:

```
* Multi Search Options
* A  Absolute Exclude
* I  Include
* X  Exclude
* IL Include Literal
* XL Exclude Literal
* *  Comment
* IA Include Attribute
* XA Exclude Attribute
```

This may be customized by the User.

CODEINT.IRE File

The CODEINT.IRE file contains the impact search criteria set for the search keyword INTERNATIONALIZATION.

This file can be used by using the File➔Open menu option on the Impact Criteria Summary screen.

Note: For more information on this search keyword refer to the Natural Engineer Application Analysis & Modification for Windows manual.

OBJPRES.IRE File

The OBJPRES.IRE file contains the impact search criteria set for the search keyword OBJECT BUILDER when executing the Presentation layer option.

This file can be used by using the File➜Open menu option on the Impact Criteria Summary screen.

Note: For more information on this search keyword refer to the Natural Engineer Application Restructuring for Windows manual.

OBJTECH.IRE File

The OBJTECH.IRE file contains the impact search criteria set for the search keyword OBJECT BUILDER when executing the Technical Split option.

This file can be used by using the File➜Open menu option on the Impact Criteria Summary screen.

Note: For more information on this search keyword refer to the Natural Engineer Application Restructuring for Windows manual.

Limits

Due to constraints on different platforms, Natural Engineer has to have certain limits.

It is possible to customize these limits to suit the environment being used, for the following options:

Extract

Option	Default Value	User Modifiable	How to modify
Amount of DDMs per Object.	75	NO	
Amount of Views per Object.	100	NO	
Maximum number of parsed elements per Object.	10000	YES	The **ELETAB=** parameter in section **[EXTRACT]** of the NATENG.INI file.
Maximum number of variable definitions per object.	1000	YES	The **VARTAB=** parameter in section **[EXTRACT]** of the NATENG.INI file.
Maximum number of unique objects in the base library.	20000	YES	The **OBJTAB=** parameter in section **[EXTRACT]** of the NATENG.INI file.
Maximum number of unique referenced objects in the base library.	10000	YES	The **REFTAB=** parameter in section **[EXTRACT]** of the NATENG.INI file.
Maximum number of unique DDM objects per application.	500	YES	The **GBLDDM-TAB=** parameter in section **[EXTRACT]** of the NATENG.INI file.
Amount of objects to retrieve from steplibs.	1000	YES	The **STEPTAB=** parameter in section **[EXTRACT]** of the NATENG.INI file.
Maximum number of DDM definitions in memory.	0	YES	The **DDMCACHE=** parameter in section **[EXTRACT]** of the NATENG.INI file.

Option	Default Value	User Modifiable	How to modify
Amount of PERFORM statements per object.	300	YES	The **PERF-TAB=** parameter in section **[EXTRACT]** of the NATENG.INI file.
Amount of DEFINE subroutines held per object.	130	YES	The **PERF-DTAB=** parameter in section **[EXTRACT]** of the NATENG.INI file.

Impact

Option	Default Value	User Modifiable	How to modify
Amount of Impact Versions per Application.	99	NO	
Maximum number of iterations that IOR will track objects across Object boundaries when consistency used for Analysis.	20	YES	The **IOR-LIMIT=** parameter in section **[IMPACT]** of the NATENG.INI file.

General

Option	Default Value	User Modifiable	How to modify
Length of Directory path name when importing external files e.g. Impact Search Criteria (*.IRE)	64	NO	
Amount of Entry Points allowed to be specified	29	NO	

Option	Default Value	User Modifiable	How to modify
Maximum amount of Objects loaded into a list box for selection at one time	200	YES	The **LISTBOXMAX=** parameter in section **[LIMITS]** of the NATENG.INI file.

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